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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,970	06/27/2003	Giridhari L. Agrawal	4825-09	7432

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EXAMINER

HANSEN, COLBY M

ART UNIT

PAPER NUMBER

3682

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/608,970

Applicant(s)

AGRAWAL, GIRIDHARI L.

Examiner

Colby Hansen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01262004</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-17, 19-22, 25, and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Heshmat (US Pat. 5,833,369).

A compliant foil thrust bearing, comprising: a thrust bearing plate; a plurality of foils 42 disposed on the surface of said thrust bearing plate 60; a spring plate 62 operatively engaging the thrust bearing plate 60; a plurality of springs 48,49,66,68 disposed on the surface of said spring plate; and at least one of said thrust bearing plate 60 and said spring plate 62 including a plurality of decoupled bearing segments defined in part by a plurality of lines of weakness circumferentially dispersed about the at least one of said thrust bearing plate and said spring plate (in the spring plate the lines of weakness are 92; in the thrust plate the lines of weaken, as broadly recited, are 74 which separate an inner radial segment from an outer radial segment, as broadly recited); wherein the lines of weakness are slits; wherein the lines of weakness are slots; wherein the lines of weakness are perforations; wherein the lines of weakness are etched lines (as this claim is a product-by-process recitation, product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps, as such Heshmat is capable of creating all of the compliancy lines by etching if it so wished); wherein the lines of weakness are grooves; wherein the lines of weakness are provided in the thrust bearing plate 74;

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wherein each bearing segment includes at least one foil 42; wherein the lines of weakness are provided in the spring plate 62; wherein each bearing segment includes at least one spring; wherein the thrust bearing plate and the spring plate are annular plates, each having an outer diameter and an inner diameter; wherein the lines of weakness extend from the inner diameter (on spring plate); wherein the lines of weakness extend from the outer diameter; wherein the line of weakness extend from both the inner diameter and the outer diameter; wherein the lines of weakness are circumferentially dispersed about the one of said thrust bearing plate 60 and said spring plate 62 in a sequenced pattern; wherein lines of weakness 74,92 are provided in the thrust bearing plate and the spring plate to define a plurality of decoupled bearing segments in each.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heshmat (US Pat. 5,833,369).

Heshmat (US Pat. 5,833,369) discloses the claimed invention except for the thrust bearing plate having decoupled bearing segments defined in part by a plurality of lines of weakness (Examiner reads the term “bearing segment” in this rejection, in light of the specification, to be an arced, pie-slice segment of the plate, and therefor much narrower

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interpretation than that of the above 102 rejections), said lines of weakness additionally extending radially from the inner and outer circumferential edges.

However, Heshmat (US Pat. 5,833,369) does teach the use of lines of weakness (slots, slits, perforations, grooves, etched lines, etc.) extending radially from the inner and outer circumferential edges of a spring plate for the purpose of improving compliance of the bearing and enabling the bearing to accommodate excursions of the thrust runner.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the radially extending compliancy lines of the spring plate of Heshmat (US Pat. 5,833,369) as obvious alternatives to the axially extending compliancy lines of the thrust plate of Heshmat (US Pat. 5,833,369) so as to improving compliance of the thrust plate and enabling the bearing to accommodate excursions of the thrust runner, as suggested by Heshmat; additionally it would have been obvious so as to make manufacturing easier (cuts of the sort of the spring plate are easier to make than holes of thrust plate).

### ***FACSIMILE TRANSMISSION***

Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is **(571) 273-8300**. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see MEP.

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502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check **should not be** submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MEP. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to the Patent and Trademark Office (Fax No. (703) 872-9306) on \_\_\_\_\_

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(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MEP. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your

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response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

### *Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colby Hansen whose telephone number is (571) 272-7105. The examiner can normally be reached on Monday through Thursday and every other Friday from 7:30 PM to 5:00 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley, can be reached on (571) 272-6917. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168.

Colby M. Hansen

  
Patent Examiner

10/28/05

  
RICHARD W. RIDLEY  
~~PRIMARY EXAMINER~~  
SPE AU 3682